NutraNorth®

CERTIFICATE OF ANALYSIS

Manufactured for	**MACKISEN**				
Name of product:	**Acetyl L-carnitine**				
Packaging Lot # :	**M2500711/1**	**Master Packaging Record #**		**Expiry Date :**	**10/2028**
		MPR	**MA-N779-90-V0**		
Manufacturing Lot # :	**M2500711**	**Master Manufacturing Record #:**		**MFG Date:**	**11/2025**
		MMR	**MA-N779-V0**		
Storage Conditions:	Store at room temperature (R.T), in closed dry containers and Keep away from high temperature & moisture.				
Physical Description:	White powder in clear Veggie "00" capsules.	90 count in Bottle-250 cc-45/400 White HDPE Round with Cap-45-400 white HIS P/P,ribbed,plain liner.			

Physical Tests:

TESTES	Results	Specifications Low	Target	High	Strength	Method
Average Wt. of Capsules	984 mg	920	1022	1124	mg	USP <2091>
Wt. variation of Capsules	Conforms	Conforms as per USP weight variation +/- 10 %				USP <2091>
Odour & Taste	Conforms	Characteristic, Conforms to Standard				Visual, Olfactory
Disintegration	14 mins	NMT 30			min	USP <2040>
IDENTITY	Conforms	Conforms to standard				FTIR

By Qualitative Analysis	Results		Low	Target	High	Strength	Method
Acetylcarnitine (Acetyl-L-Carnitine Hydrochloride)	757.71	mg	600.00	750.00	900.00	mg	JPL-014 (HPLC)
NON-MEDICINAL INGREDIENTS	Silicon dioxide, Rice Powder, Empty Clear Vegetable Capsule						

Purity:

MICRO:	Results	Limits	Method
Total Plate Count	Conforms	< 3,000 c.f.u / g	USP <2021/2022>
Total Yeast	10 CFU/g	< 300 c.f.u / g	USP <2021/2022>
Total Mold	40 CFU/g	< 300 c.f.u / g	USP <2021/2022>
E.Coli	Not Detected	Not Detected	USP <2021/2022>
Salmonella Spp	Not Detected	Not Detected	USP <2021/2022>
Staphylococcus Aureus	Not Detected	Not Detected	USP <2021/2022>
HEAVY METALS:	**Results**	**Limits - 3 capsules / day**	**Method**
Arsenic	0.0009 mcg / kg b.w./day	< 0.14 mcg / kg b.w./day	ICP-MS
Cadmium	<0.0001 mcg / kg b.w./day	< 0.09 mcg / kg b.w./day	ICP-MS
Lead	0.0016 mcg / kg b.w./day	< 0.14 mcg / kg b.w./day	ICP-MS
Total Mercury	<0.0001 mcg / kg b.w./day	< 0.29 mcg / kg b.w./day	ICP-MS

Prepared by: Sainihal Dec/31/2025

Approved by: EShargav.R Dec/31/2025

Quality Assurance

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CERTIFICATE OF ANALYSIS

Manufactured for	**MACKISEN**				
Name of product:	**Acetyl L-carnitine**				
Packaging Lot # :	**M2500711/2**	**Master Packaging Record #**		**Expiry Date :**	**10/2028**
		MPR	**MA-N779-180-V0**		
Manufacturing Lot # :	**M2500711**	**Master Manufacturing Record #:**		**MFG Date:**	**11/2025**
		MMR	**MA-N779-V0**		
Storage Conditions:	Store at room temperature (R.T), in closed dry containers and Keep away from high temperature & moisture.				
Physical Description:	White powder in clear Veggie "00" capsules.	180 count in Bottle-400 cc-53/400 White HDPE Round with Cap-53-400 white HIS P/P,ribbed,plain liner.			

Physical Tests:

TESTES	Results	Specifications Low	Target	High	Strength	Method
Average Wt. of Capsules	984 mg	920	1022	1124	mg	USP <2091>
Wt. variation of Capsules	Conforms	Conforms as per USP weight variation +/- 10 %				USP <2091>
Odour & Taste	Conforms	Characteristic, Conforms to Standard				Visual, Olfactory
Disintegration	14 mins	NMT 30			min	USP <2040>
IDENTITY	Conforms	Conforms to standard				FTIR

By Qualitative Analysis	Results		Low	Target	High	Strength	Method
Acetylcarnitine (Acetyl-L-Carnitine Hydrochloride)	757.71	mg	600.00	750.00	900.00	mg	JPL-014 (HPLC)
NON-MEDICINAL INGREDIENTS	Silicon dioxide, Rice Powder, Empty Clear Vegetable Capsule						

Purity:

MICRO:	Results	Limits	Method
Total Plate Count	Conforms	< 3,000 c.f.u / g	USP <2021/2022>
Total Yeast	10 CFU/g	< 300 c.f.u / g	USP <2021/2022>
Total Mold	40 CFU/g	< 300 c.f.u / g	USP <2021/2022>
E.Coli	Not Detected	Not Detected	USP <2021/2022>
Salmonella Spp	Not Detected	Not Detected	USP <2021/2022>
Staphylococcus Aureus	Not Detected	Not Detected	USP <2021/2022>
HEAVY METALS:	**Results**	**Limits - 3 capsules / day**	**Method**
Arsenic	0.0009 mcg / kg b.w./day	< 0.14 mcg / kg b.w./day	ICP-MS
Cadmium	<0.0001 mcg / kg b.w./day	< 0.09 mcg / kg b.w./day	ICP-MS
Lead	0.0016 mcg / kg b.w./day	< 0.14 mcg / kg b.w./day	ICP-MS
Total Mercury	<0.0001 mcg / kg b.w./day	< 0.29 mcg / kg b.w./day	ICP-MS

Prepared by: Saipinihal Dec/31/2025

Approved by: EShargav.R Dec/31/2025

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